IN THE CLAIMS:

Amendments to the Claims

Please cancel claims 78 - 89 without prejudice or disclaimer of the subject matter thereof and add the following new claims.

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-69 (canceled)

Claims 70 - 77 (canceled)

Claims 78-89 (canceled)

90. (new) A plasma etching method for processing a sample inside a processing chamber comprising the steps of:

locating the sample on a sample stage disposed inside the processing chamber:

introducing a processing gas inside the processing chamber: and

processing the sample using a plasma generated in a space inside the processing chamber which is surrounded by a sidewall member of the processing chamber which has a substantially cylindrical shape and is electrically grounded to earth, and which has an upper member of the processing chamber as a ceiling thereof disposed above the sample stage with the sidewall member being disposed adjacent thereto the upper member including an electrically conductive plate disposed in opposition to the sample;

wherein during the step of processing the sample, a bias is applied on a surface of the electrically conductive plate, a temperature of the sidewall member is made lower than a temperature of the sample, and a temperature of the upper member is made higher than the temperature of the sample.

91. (new) A plasma etching method according to claim 90, wherein a circumferential portion of the upper member and an upper end of the sidewall member are disposed adjacent to each other.

92. (new) A plasma etching method according to claim 90, wherein a dielectric ring member is disposed at an outer periphery of the electrically conductive plate which constitutes a part of the upper member and which extends to the periphery thereof, and wherein a temperature of the dielectric ring member is made lower than the temperature of the electrically conductive plate during the step of processing the sample.

93. (new) A plasma etching method according to claim 90, wherein the sidewall member has a jacket member which is removable from the processing chamber and has a heat exchanging medium which is circulated inside of the jacket member so as to control the temperature of the sidewall member.

94. (new) A plasma etching method according to claim 90, further comprising a step of supplying a radio frequency power to the electrically conductive plate to generate the bias thereon during the step of the processing sample.

95. (new) A plasma etching method according to claim 91, wherein a dielectric ring member is disposed at an outer periphery of the electrically conductive plate which constitutes a part of the upper member and which extends to the

periphery thereof, and wherein a temperature of the dielectric ring member is made lower than the temperature of the electrically conductive plate during the step of processing the sample.

96. (new) A plasma etching method according to claim 91, wherein the sidewall member has a jacket member which is removable from the processing chamber and has a heat exchanging medium which is circulated inside of the jacket member so as to control the temperature of the sidewall member.

97. (new) A plasma etching method according to claim 91, further comprising a step of supplying a radio frequency power to the electrically conductive plate to generate the bias thereon during the step of the processing sample.

98. (new) A plasma etching method for processing a sample using a plasma comprising the steps of:

locating the sample on a sample stage disposed in a space inside the vacuum vessel, wherein the vacuum vessel comprises a sidewall member which has a substantially cylindrical shape and a housing which holds an upper member as a ceiling of the space disposed above the sample stage, the upper member being adjacent to the sidewall member and including an electrically conductive plate disposed in opposition to the sample, the sidewall member and the upper member surrounding the space;

introducing a processing gas inside the space; and

processing the sample using a plasma generated in the space;

wherein during the step of processing the sample, a bias is applied on a surface of the electrically conductive plate, a temperature of the sidewall member is made lower than a temperature of the sample, and a temperature of the upper

member is made higher than the temperature of the sample, the sidewall member and the upper member being disposed to as to face the plasma.

99. (new) A plasma etching method according to claim 98, wherein a dielectric ring member is disposed at an outer periphery of the electrically conductive plate and which constitutes a part of the upper member and extends to the periphery thereof, and wherein a temperature of the dielectric ring member is made lower than the temperature of the electrically conductive plate during the step of processing the sample.

100. (new) A plasma etching method according to claim 98, further comprising a step of supplying a radio frequency power to the electrically conductive plate to generate the bias thereon during the step of the processing the sample.

101. (new) A plasma etching method according to claim 98, wherein the sidewall member has a jacket member which is removable from the processing chamber and has a heat exchanging medium which is circulated inside of the jacket member so as to control the temperature of the sidewall member.

102. (new) A plasma etching method according to claim 99, further comprising a step of supplying a radio frequency power to the electrically conductive plate to generate the bias thereon during the step of the processing the sample.

103. (new) A plasma etching method according to claim 99, wherein the sidewall member has a jacket member which is removable from the processing chamber and has a heat exchanging medium which is circulated inside of the jacket member so as to control the temperature of the sidewall member.

104. (new) A plasma etching method according to claim 98, wherein a circumferential portion of the upper member and an upper end of the sidewall member are disposed adjacent to each other.